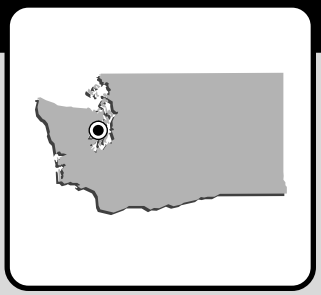
KEYPORT NAVAL UNDERSEA WARFARE CENTER
KEYPORT, WASHINGTON



Engineering Field Division/Activity:	EFANW
Major Claimant:	COMNAVSEASYSCOM
Size:	340 Acres
Funding to Date:	$16,640,000
Estimated Funding to Complete:	$39,693,000
Base Mission:	Originally tested torpedoes; expanded to include proving, overhaul and issue of torpedoes
Contaminants:	Chlorinated solvents, heavy metals, pesticides/herbicides, Otto fuel, POLs

Number of Sites:		**Relative Risk Ranking of Sites:**			
CERCLA:	11	**High:**	6	**Not Evaluated:**	1
RCRA Corrective Action:	1	**Medium:**	1	**Response Complete:**	5
RCRA UST:	1	**Low:**	0	**Total Sites:**	13
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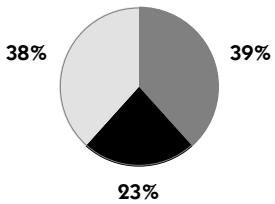
NPL

EXECUTIVE SUMMARY

Keyport Naval Undersea Warfare Center (NUWC), Washington is located on the Kitsap Peninsula in Puget Sound and is 15 miles west of Seattle, Washington. The NUWC is adjacent to a rural community, Keyport, Washington and close to another rural community, Poulsbo, Washington. The nearest urban area is Bremerton, Washington, which is eight miles to the southeast.

Operations that included plating, torpedo refurbishing and disposal practices contributed to contamination found at the NUWC. Environmental investigations since FY84 have identified several site types. Industrial and hazardous wastes were disposed of at the Keyport Landfill between the 1930's and 1970's. Hazardous materials included solvents, paints, sludge and otto fuel. Between the 1940's and 1960's at the drum spill site, contaminants including solvents, petroleum products, otto fuel, and pesticides were spilled so that drums could be reused. Sewer sludge containing inorganic compounds was disposed of from the 1940's to the 1970's at the Keyport Sludge Disposal Area. The shoreline around the station has been contaminated with wastes discharged through the sewers from 1915 until 1980. These wastes include plating wastes, paints, solvents, petroleum products, and otto fuels. Keyport NUWC was placed on the NPL in October 1989. The Navy has changed is operational processes to prevent further contamination. The sites ranked as high relative risk were so ranked primarily because of known contamination and identified migration pathways to both human and ecological receptors. Keyport NUWC is being cleaned up under a Federal Facility Agreement (FFA) which was signed in 1990 by the Department of the Navy and the State of Washington, Department of Ecology and the Attorney General.

Since Keyport NUWC is located on a peninsula, a shallow sea level aquifer and a deep artisan aquifer underlie the base. The deep aquifer is the primary source of water for the station, the shallow aquifer is not used. Surface drainage flows into Liberty Bay. Native American Indians have legal rights to half of the shellfish living in Liberty Bay, however, the Department of Health closed shellfish harvesting in Liberty Bay in 1991 due to fecal coliform. Shellfish tissue samples are being collected.



Current Status Of Sites

Studies Underway	5
Cleanups Underway	3
Response Complete	5
TOTALS	13

Surface drainage also flows into a shallow lagoon on the north and east side of the peninsula and into Dogfish Bay on the west side. Concentrations of contaminants measured in surficial sediment, surface water, and shellfish of Dogfish Bay were within normal ranges. This indicates that contaminants are not migrating out of the marsh area or are diluted and dispersed to such an extent that they cannot be detected in Dogfish Bay. Dogfish Bay is used for commercial oyster farming.

The Site Inspection (SI) found low concentrations of metals in soil and sediment of the stream and lagoon adjacent to Site 2. The SI also found significant concentrations of metals, petroleum hydrocarbons and undifferentiated halogenated organics in seeps and sediment of the marsh adjacent to Site 1 (Keyport Landfill). Concentrations of contaminants observed in the marsh may have potentially adverse impacts on the ecology of the marsh.

A Community Relations Plan (CRP) was completed in late FY90. Fact sheets are prepared on a frequent basis, a door-to-door community survey has been conducted, and six open houses and workshops have been held. A Technical Review Committee (TRC) was formed in FY89 and converted to a Restoration Advisory Board (RAB) in FY95. RAB members have reviewed, commented and approved work plans. RAB members have attended a RAB work group in San Francisco, and participated in a regional workshop for Puget Sound RABs.

At the end of FY95, five of the 13 Keyport NUWC sites were in the study phase, three were in the cleanup phase, and five are Response Complete (RC). Early removal actions include a removal in FY92 at a chromate spill site. An underground trench and several sumps were excavated and chromium-contaminated soil was removed and replaced with clean fill. Also in FY92, several Underground Storage Tanks (USTs) were removed at UST 1. Studies conducted include Remedial Investigation/Feasibility Study (RI/FS) activities for Sites 1, 2, 3, 5, 8 and 9 in early FY93. Due to public concerns regarding the Proposed Remedial Action Plan (PRAP), an additional RI is currently underway for Site 1.

Groundwater monitoring will start at Sites 2 and 8 in October 1996. Soil removal will be complete at Site 8 in FY98. Also in FY98, a Remedial Action (RA) is expected to be completed at all sites.

KEYPORT NUWC
RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - Keyport NUWC is located on a peninsula. A shallow sea level aquifer and a deep artisan aquifer underlie Keyport NUWC. The deep aquifer is the primary source of water for the station, the shallow aquifer is not used. Surface drainage flows into Liberty Bay. Surface drainage also flows into a shallow lagoon on the north and east side of the peninsula and into Dogfish Bay on the west side. Concentrations of contaminants measured in surficial sediment, surface water and shellfish of Dogfish Bay were within normal ranges. This indicates that contaminants are not migrating out of the marsh area or are diluted and dispersed to such an extent that they cannot be detected in Dogfish Bay. The SI found low concentrations of metals in soil and sediment of the stream and lagoon adjacent to the Keyport Van Meter Road Spill (Site 2). The SI also found significant concentrations of metals, petroleum hydrocarbons and undifferentiated halogenated organics in seeps and sediment of the marsh adjacent to Site 1 (Keyport Landfill). Concentrations of contaminants observed in the marsh may have potentially adverse impacts on the ecology of the marsh.

NATURAL RESOURCES - Dogfish Bay is used for commercial oyster farming. Native American Indians have legal rights to half of the shellfish living in Liberty Bay, however, the Department of Health closed shellfish harvesting in Liberty Bay in 1991 due to fecal coliform. Shellfish tissue samples are being collected.

RISK - Using the Department of Defense (DOD) Relative Risk Ranking System, five sites and one UST site received a high relative risk ranking. These sites include a landfill, spill area, sludge disposal area, shoreline area and plating operations area. The primary contaminants at these sites are solvents, otto fuels, petroleum products, paints and plating wastes. Four of the sites have contaminants that are affecting groundwater. The landfill has wastes located below the water table. Surface aquifer discharges to an adjacent marsh which in turn drains to Liberty Bay, an arm of Puget Sound. This potentially impacts shallow drinking water wells, surface water, and marine sediments as well as humans, flora and fauna exposed to the water or sediments. The 5,000 feet of shoreline area (Liberty Bay) has contaminated surface water which is moved by tidal and other forces. To reduce risk at the Plating Area, Site 8, an underground trench and several sumps were excavated and chromium-contaminated soil was removed and replaced with clean fill.

REGULATORY ISSUES

NATIONAL PRIORITIES LIST - Keyport NUWC was included on the NPL on 4 October 1989 based on a Hazard Ranking System score of 32.61.

LEGAL AGREEMENTS - A Federal Facilities Agreement (FFA) was signed in April 1990 by the Department of the Navy and the State of Washington, Department of Ecology and the Attorney General.

PARTNERING - To improve site management, regulatory agencies are involved in developing the scope of work, and during document planning phases, technical memoranda are prepared to convey issues before document finalization. Concurrent document reviews are also conducted.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - A TRC was formed in FY89 and converted to a RAB in January 1995. The first formal RAB meeting was held in March 1995. The 20 RAB members have reviewed, commented and approved work plans. By-laws have been finalized. RAB members have attended a RAB work group in San Francisco, and participated in a regional workshop for Puget Sound RABs.

COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in September 1990. Fact sheets are prepared on a frequent basis, a door-to-door community survey has been conducted, and six open houses and workshops have been held.

INFORMATION REPOSITORY - In FY89, an Administrative Record was established at the Naval Facilities Engineering Command (NAVFAC) Engineering Field Activity, Northwest (EFANW). Information Repositories are located at the central branch of the Kitsap County Library and the Poulsbo Branch. Copies of the Administrative Record documents (the official file) are available for public access in the Information Repositories.

KEYPORT NUWC
HISTORICAL PROGRESS

FY84

Sites 1-9 - An Initial Assessment Study (IAS) identified nine potentially contaminated sites. Sites 3-8 were determined not to pose a threat to human health or the environment. Sites 1, 2 and 9 were recommended for further investigation.

FY87

Sites 1, 2, 3, 5 and 9 - A Current Situation Report was completed for these sites. Sites 3 and 5, which were not recommended for further investigation in the IAS, were added at the Department of the Navy's (DONs) request, based on information obtained after the IAS was completed. The SI recommended further investigation of Sites 1, 2 and 9. In addition, the SI recommended a field survey to monitor for combustible gas and other organic vapors in soil and buildings at Site 1.

FY88

Site 1 - A landfill Gas Investigation was completed. Significant concentrations of methane were found in subsurface soil in the vicinity of Site 1. Concentrations of volatile organic compounds in the buildings were found to be well below the Occupational Safety and Health Act (OSHA) standards.
Sites 3 and 5 - Sampling was not conducted during the SI. Findings for these sites were based on existing reports and information which indicated the presence of Otto Fuel in subsurface soil and groundwater at Site 3 and metals in soil at Site 5. The SI recommended installing monitoring wells at Site 3 and conducting subsurface soil sampling at Site 5.

FY90

Site 8 - This site was added to the RI under the FFA that was signed by the Department of the Navy and the State of Washington, Department of Ecology and the Attorney General.
UST 1 - This site consists of 21 USTs. Groundwater was monitored for evidence of petroleum contamination and subsurface soil samples were collected. The Corrective Action Plan (CAP) was completed.

FY91

A RCRA Facility Assessment (RFA) field investigation was conducted by the State of Washington Department of Ecology. Keyport NUWC has not received an RFA final report.
Site 22 - This site was discovered while a utility duct trench was being excavated. Fill materials, including metal piping and shavings, plastic battery casings, bricks, municipal trash and a torpedo, were found and removed during a construction project. Site 22 is immediately adjacent to Site 1 (Keyport Landfill) and it was determined that the landfill extended further than originally anticipated. No additional debris was found during the SI; therefore, No Further Action (NFA) is recommended at Site 22.

FY92

Sites 10-21 - These sites are located at Naval Ordnance Center (NOC) Port Hadlock and are no longer a part of Keyport NUWC.
Site 8 - A removal action was completed. An underground trench and several sumps were excavated and chromium-contaminated soil was removed and replaced with clean fill.
UST 1 - Interim Corrective Measures (tank removals) were completed.

FY93

Sites 7 and 22 - An SI was completed at these two sites. Site 7 was addressed in the IAS, but was determined not to pose a threat to human health or the environment and was not recommended for further investigation. Soil and groundwater contaminated with chlorinated solvents were discovered during military construction projects that were conducted in the area. The SI showed contamination below background levels, therefore, NFA is recommended.
Sites 1, 2, 3, 5, 8 and 9 - An RI/FS was conducted.

FY94

Sites 2, 3, 5, 8 and 9 - A Record of Decision (ROD) was signed for OU 2. NFA is required at Sites 3, 5 and 9. Confirmational sampling and monitoring will be conducted at Sites 2, 5, 8 and 9.
UST 1 - Interim Corrective Measures (tanks filled with concrete) was completed for eight tanks. Groundwater is being monitored for evidence of petroleum contamination, and subsurface soil samples were collected.

PROGRESS DURING FISCAL YEAR 1995

FY95

Site 1 - Some temporary buildings located above the landfill at Site 1 were vacated and removed as a precautionary measure.
Site 23 - An RFI/SI was completed. Site 23 consists of hazardous waste storage tanks and sumps at 83 locations that were identified during the RFA. Probable contaminants are solvents and petroleum products sludge (petroleum/oil/lubricants). Corrective Action (CA), consisting of removal and closure was completed.
Sites 2, 5, 8 and 9 - Confirmational sampling and monitoring plans were finalized.
Site 8 - A Phase I RA was conducted.
Site 23 - A CA consisting of removal and closure, began. Site 23 consists of hazardous waste storage tanks and sumps. Probable contaminants include solvents and petroleum products.
UST 1 - RD was completed.

PLANS FOR FISCAL YEAR 1996

FY96

Site 1 - Pre-ROD sampling will be completed in FY96. An RI/FS is expected to be completed in December 1996.
Site 8 - This site will undergo Phase II soil removal. Work plans for Phase II will be started in FY96. An RA is anticipated to be completed in FY98.
Sites 2 and 8 - Groundwater monitoring will start in FY96.
UST 1 - Corrective Measures will be completed at all 14 tanks. The Corrective Measures may consist of tank and soil removal, or in-situ remediation of contaminated soil. Groundwater treatment may be performed, based on results of groundwater monitoring to meet regulatory requirements.

KEYPORT NUWC
PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	9			1				
SI	7							
RI/FS	4	1	1					
RD								
RA		2						3
IRA	1(1)	1(1)	1(1)			1(1)		
RC	5		2	1				3
Cumulative Response Complete	45%		64%	73%				100%
RCRA CA	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
RFA	1							
RFI			1					
CMS								
DES								
CMI						1		
IRA								
RC						1		
Cumulative Response Complete						100%		
UST	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
ISC								
INV								
CAP	1							
DES		1						
IMP			1					
IRA								
RC			1					
Cumulative Response Complete			100%					